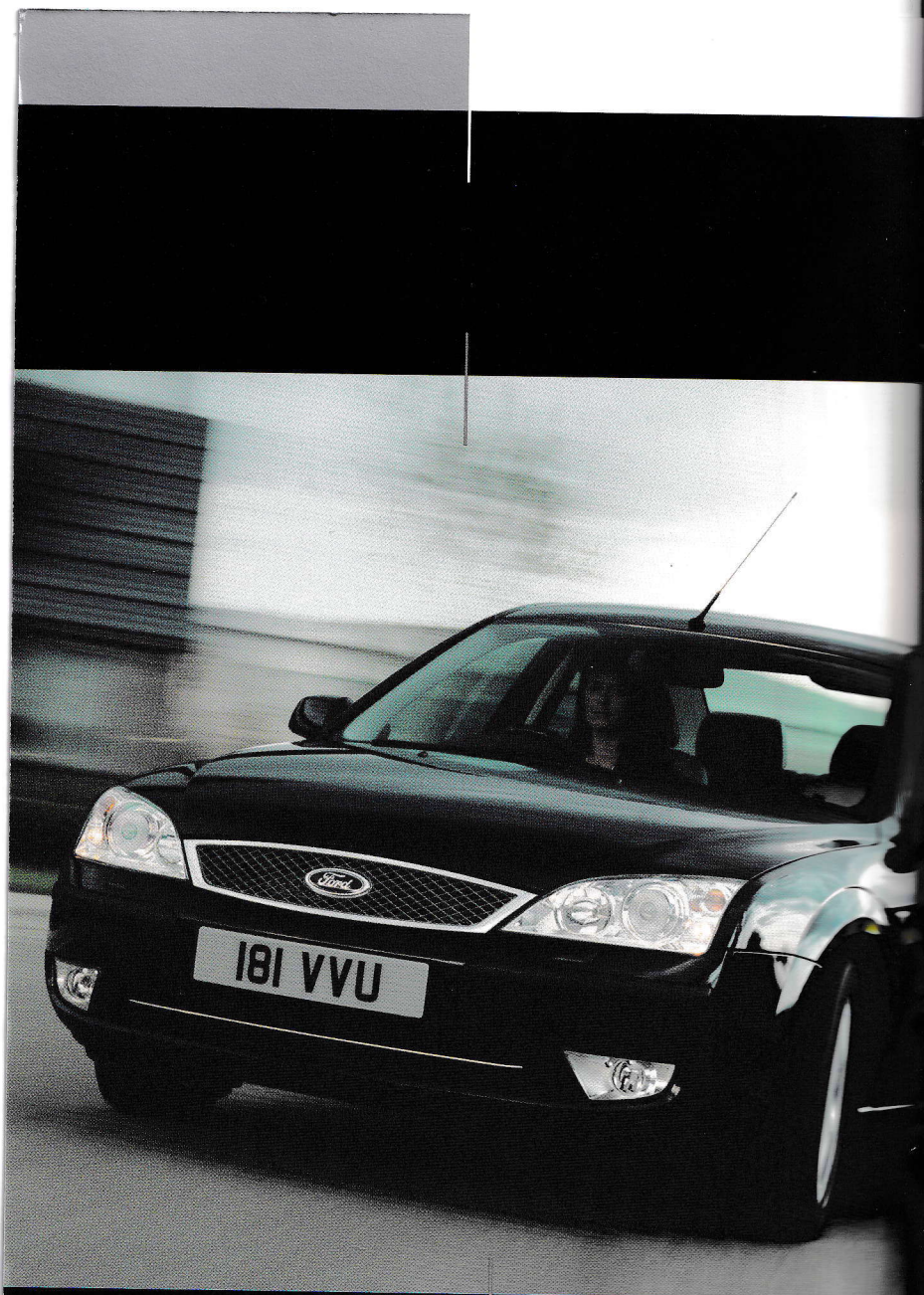


Ford**Mondeo**

Duratec**Sci**



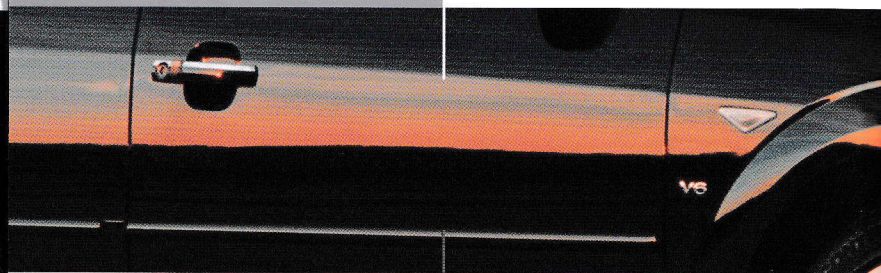


NEW FORD MONDEO: FLAGSHIP FORD HERALDS GREATER TECHNOLOGY AND CRAFTSMANSHIP

- Over 1500 new parts, focused on new technology and greater craftsmanship.
- All-new powertrain option: Ford's first direct-injection petrol engine, Duratec SCi.
- New Durashift 6-speed manual transmission for all higher-powered Mondeos, including range-topping ST220, now with 155mph top speed.
- F1-style steering-wheel mounted shift control option on Durashift 5-tronic automatic transmission.
- Series of Ford luxury 'firsts': climate front seats, heated rear seats, power folding door mirrors with 'puddle' lamps, automatic headlamps, rain sensing wipers and new Sony TM audio systems.
- Rear-seat multi-media entertainment option.
- Navigation system option, including DVD-based route guidance and colour touch screen.
- New centre console heads key interior and exterior visual changes

On the tenth anniversary of its original launch, Ford's flagship Mondeo range heralds its highest ever levels of technology and craftsmanship.

Over 1500 new parts lie behind a significant package of new technologies, interior and



exterior enhancements, focused on keeping Ford Mondeo at the top of its class.

Key in the new range is the 1.8-litre Duratec SCi engine, the debut of Ford's direct-injection petrol technology, offering significant fuel-economy benefits over conventional petrol engines. Also introduced are further refinements to the Duratorq TDCi common-rail turbodiesel engine, and expanded availability of the new Durashift six-speed manual transmission.

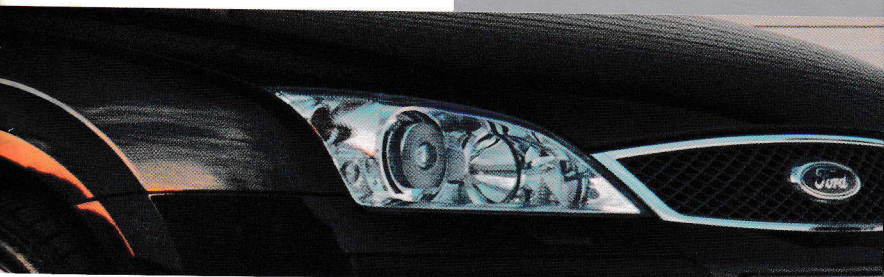
Latest Technology For Maximum Choice

The new Ford Mondeo heralds the introduction of Ford's Duratec SCi direct-injection petrol technology, in 1.8-litre, 130PS engine form.

Duratec SCi uses direct petrol injection to provide improved fuel economy, less noise and lower emissions. Named for its Smart Charge injection system, this new member of the Duratec engine family delivers fuel economy improvements of between 6 and 8 per cent under normal driving conditions, along with increased power output and acoustic refinement.

Duratec SCi uses less fuel at low engine speeds, under idle or light throttle conditions, which makes it ideal for saving fuel in everyday, real-world driving.

In order to enhance the real world fuel economy, Mondeo Duratec SCi is also equipped with the new Durashift 6-speed manual transmission. This combination of technologies

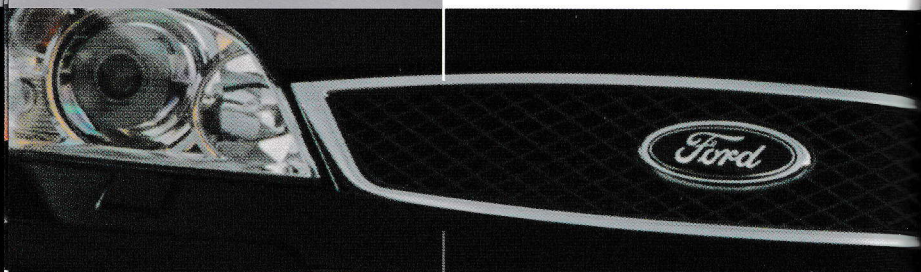


offers excellent performance feel and extremely comfortable, fuel-efficient motorway cruising.

Ford engineers carefully optimised the characteristics of direct fuel injection to create Mondeo Duratec SCI's excellent real-world fuel economy performance. Similar to a diesel common-rail system, a direct-injection petrol engine introduces fuel directly into the combustion chamber instead of into the intake port. Key to its efficient operation is the ability to use a reduced amount of fuel while producing enough power for cruising or moderate acceleration. The engine's lean-burn, stratified operation is effective across 50 per cent of the engine's full load capability and 60 per cent of maximum engine speed.

Another benefit of this efficient combustion system is extremely stable idle operation and low overall vibration levels, giving a new level of refinement to Mondeo.

The new Duratec SCI is certified to Euro Stage IV emissions. The engine is fitted with an advanced exhaust emission treatment system, featuring a dual 'three-way' catalyst configuration. One three-way catalyst is integrated in the exhaust manifold for quick warm-up efficiency under cold-start conditions and a second is downstream. The exhaust treatment system also features a NOx catalyst, which is especially effective in ensuring consistently low emissions during lean-burn operation such as city traffic conditions.



Mondeo Duratec SCi with six-speed manual transmission is targeted to achieve fuel consumption levels of: 28.5mpg urban, 49.5mpg extra urban and 39.2mpg combined on the official European driving cycle, while emitting 173 grams per kilometre of CO₂. This equates to a 7.7 per cent fuel economy improvement over the standard 125PS, 1.8-litre Duratec HE, with even greater savings predicted in real-world driving.

Significantly for fleet drivers, Duratec SCi also positions Mondeo high in the league table for lowest petrol car CO₂ emissions.

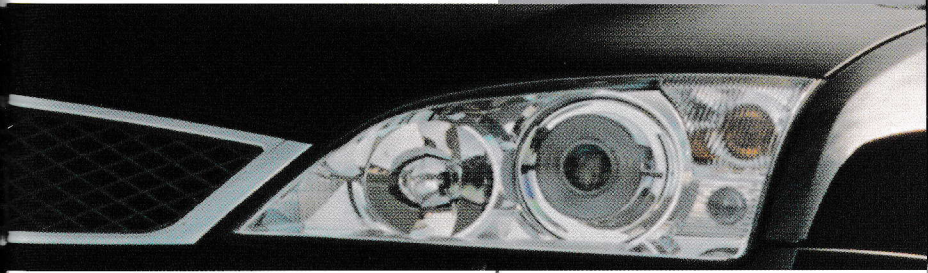
Targeted performance for Mondeo Duratec SCi is zero to 62mph in 10.5 seconds and a top speed of 128mph.

Six Appeal: Durashift Six-Speed Manual Transmission

Ford is widening the availability of its new Durashift six-speed manual transmission in the Mondeo range. Specially designed for higher output engines, the six-speed debuted in early 2003 on the 130PS Mondeo TDCi.

With new Mondeo, it will also be available in the 226PS, 3.0-litre Mondeo ST220, the 170PS 2.5-litre V6 and the new Duratec SCi direct-injection engine and 115PS TDCi models.

The Durashift six-speed's longer top gear gives Mondeo ST220 a boost in potential top speed from 151mph to 155mph, for more relaxed cruising at motorway speed. Zero-to-62mph



acceleration is maintained at 7.6 seconds. Official fuel consumption is certified at 19.5mpg urban, 35.3mpg extra urban and 27.1mpg combined, with CO₂ emissions of 249 grams per kilometre.

Other models' performance with the Durashift six-speed transmission:

Engine	Economy	CO ₂	Performance
Duratorq TDCi (2.0-litre, 130 PS)	Urban 36.7mpg Extra urban 60.1mpg Combined 48.7mpg	154 g/km	0-62mph 9.8 secs Top speed 128mph
Duratorq TDCi (2.0-litre, 115 PS)	Urban 36.2mpg Extra urban 60.1mpg Combined 49.9mpg	151 g/km	0-62mph 10.8 secs Top speed 122mph
Duratec V6 (2.5-litre, 170 PS)	Urban 18.8mpg Extra urban 37.6mpg Combined 27.7mpg	244 g/km	0-62mph 8.5 secs Top speed 139mph



The new transmission enhances the acclaimed driving quality of the Ford Mondeo, with, its crisp and accurate shift quality complementing Mondeos inherent high levels of refinement.

Manufactured in Cologne, the transmission, code-named MMT6, is a major product of the joint venture between Ford and Getrag to create the latest transmission technology for Ford vehicles.

**Mondeo Durashift Six
Speed Manual
Transmission
(for Duratec SCi and
Duratec V6 models)**

Gear Ratios

1st	3.231	
2nd	2.048	
3rd	1.423	
4th	1.029	
5th	1.129	
6th	0.886	
Reverse	1.360	
Final Drive Set	4.357	(1/2/3/4)
	3.050	(5/6/Rev)

Ford's proven Durashift five-speed manual transmission remains the standard manual transmission on other engines in the Mondeo range.



Durashift 5-tronic: F1 technology for refined automatic

F1-style, steering-wheel-mounted pushbutton shifting now adds to the sophistication of Ford Mondeo's five-speed Durashift 5-tronic automatic transmission.

Durashift 5-tronic operates as a conventional automatic transmission, with the added freedom to select gears manually using its sequential 'Select-Shift Manual' feature. The driver can now use new steering-wheel-mounted button shift actuators instead of the gear lever and further improve control by keeping both hands on the wheel.

While in manual mode, the driver controls shifting by pushing one of two buttons on the steering wheel that signal the transmission

to change up or down.

Alternatively, flicking the gearlever rearward toward the "+" sign instructs the transmission to move into a higher gear, while flicking forward toward the "-" sign sends an instruction to downshift.

Durashift 5-tronic features an Automatic Transmission Control Unit (ATCU), which delivers new levels of shifting smoothness and allows the transmission to adapt to the driver's style or varying road conditions. Durashift 5-tronic selects from five different operational modes depending on conditions or driver demands, allowing it not only to act like a manual transmission but also to think like one.

Specially engineered for higher torque engines, Durashift 5-tronic can be specified with



Mondeo's two Duratorq TDCi common-rail diesel engines, or 170-PS Duratec V6 petrol engine.

**Refined environment:
new interior features
and craftsmanship**

To create a relaxed and comfortable environment, an impressive collection of new premium interior features is available in new Mondeo including: heated and ventilated climate seats, colour, touch-screen DVD navigation system, automatic headlamps, rain-sensing wipers and new Sony™ audio systems – all 'firsts' in a European Ford.

"In 2000, the all-new Mondeo introduced a leap in craftsmanship for Ford that was obvious at first glance," said Chris Bird, Ford of Europe director of design. "With

new Mondeo, we have built on that achievement with new luxury features and touches of craftsmanship which are evident not only to the eye, but also to the ear and to the touch. It builds on the strengths it inherited."

Most noticeable at first glance is new Mondeo's revised centre console, with new levels of quality clear from the look and feel of the thoughtfully-placed switches and controls, high quality finish and the larger Sony™ audio systems, available in a Ford for the first time.

Mondeo's new climate seat option is also a first in its class. A feature more commonly found in luxury cars, climate seats augment heating with ventilation in warmer conditions, to keep occupants cool and comfortable. Climate seats have a choice of



five heating or ventilation levels. Rear-seat passengers are not left out either, with Mondeo's new heated rear seat option, another first for a European Ford.

Another new luxury convenience feature is Mondeo's rain-sensing wipers, with automatic "afterwipe" windscreen-cleaning feature.

New colours, materials and textures add to the feeling of plushness and calmness. Upgraded leathers and new fabrics, including Alcantara sports seats on ST220, convey a feeling of luxury, and other surfaces in the Mondeo interior feature revised graining and new soft-touch finishes.

Air-conditioning remains standard on all Mondeo models, with improved electronic

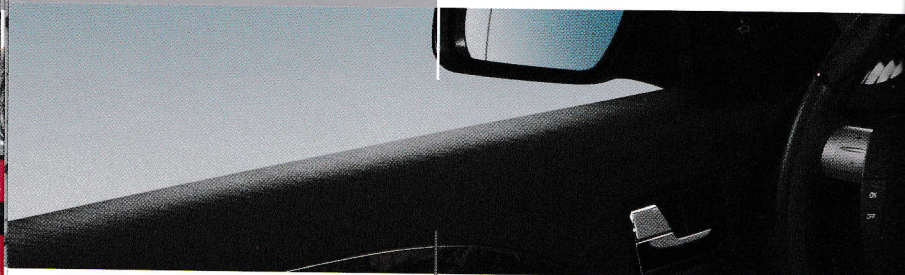
temperature control on Zetec, Ghia, Ghia X and ST220.

Mondeo's reliably high level of safety continues with its standard Intelligent Protection System, comprising six airbags, active head restraints, anti-submarining front seats, ABS and emergency brake assist. ESP is also available as standard on all V6 models.

Entertaining Options: Sony™ Audio and Rear- Seat Entertainment

The new Ford Mondeo range features a wide variety of entertainment systems, including new Sony™ premium audio units and state-of-the-art multimedia rear seat entertainment options.

Mondeo's Sony™-branded premium audio units offer customers the choice of a front-



load CD player with MP3 capability or a front-loading six-disc CD changer. Both feature Digital Sound Processing and four special hi-fi speakers with dual-cone technology that effectively operate as eight separate speakers.

Mondeo customers can also opt for a high quality, DVD-based satellite navigation system with colour touch screen and high-resolution display.

New Mondeo also offers two choices for rear-seat entertainment, giving passengers in the rear seat greater access to in-car entertainment technology.

The luxury Rear Seat Entertainment (RSE) system – available with any audio system – allows rear-seat passengers freedom to play DVD-based entertainment and games

systems using screens mounted at the rear of the front seats. An alternative unit – available with navigation or Sony™ audio systems – supplies audio only. While the front passengers listen to the radio, for example, the rear passengers can independently listen to a CD via headphones. The unit features two headphone sockets, independent volume control, radio station selection and CD play controls as well as auxiliary inputs.

Subtle Exterior Changes

Mondeo's exterior design changes have focused on attention to detail.

New chrome highlights feature on the grille opening and Mondeo's reprofiled front bumper, with the new-look



Mondeo face completed by Ford's signature trapezoidal fog lamps.

Ford designers have also created larger door mirrors for the new model, which power-fold on Ghia, Ghia X and ST220 and feature 'puddle lamps' – integral lights that illuminate the ground around the door area.

New Mondeo's tail lamps now have a distinctive, metallic look, with silvered indicator lenses, while side repeater lamps also now feature clear lenses.

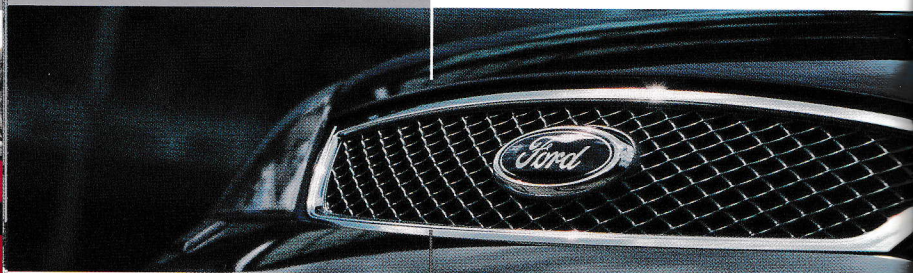
Added chrome accents on the upper doorline, door handle inserts and tailgate handle complete the premium look, while estate customers can now also opt for new metallic roof rails.

Quiet and Refined

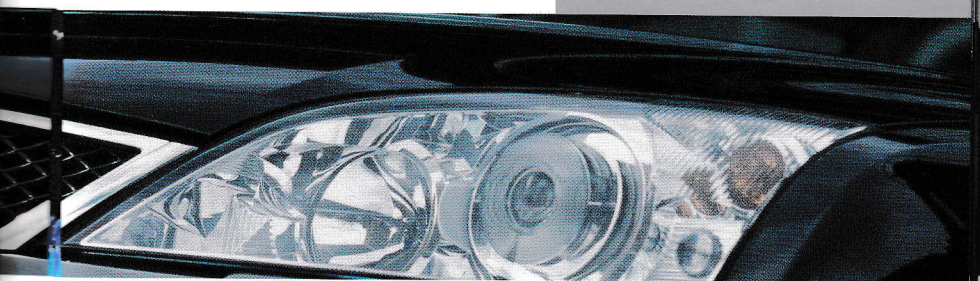
Enhancements made under the skin are as important as Mondeo's new features and interior style. Engineering efforts concentrated on keeping the cabin isolated from unwanted wind and road noise and powertrain vibration.

Mondeo's premium TDCi range features a series of enhancements aimed at extending the inherent refinement of Ford's latest diesel engine technology. A revised cylinder head incorporates new injectors for quieter operation, especially when started from cold.

"Enhancing the Mondeo range was very much about building on the car's acknowledged strengths," said Joerg Beyer, Mondeo chief



programme engineer. "While these design and engineering changes are largely evolutionary in nature, we believe the overall effect for our customers is significant, in terms of new technology, craftsmanship and refinement."



NEW MONDEO: AN ENGINE FOR EVERY NEED

A wider range

The new Ford Mondeo features one of the broadest ranges of powertrains in its segment. With a choice of nine contemporary and dependable engines, Mondeo has the right powertrain for any need.

The Mondeo range includes two second-generation high-pressure common-rail diesels, four highly efficient and modern four cylinder and V6 petrol engines and all-new direct-injection 1.8-litre Duratec SCi.

Port Fuel Injection Petrol

Duratec HE 1.8-litre (125 PS)

Duratec HE 2.0-litre (145 PS)

Port Fuel Injection V6 Petrol

Duratec 24V 2.5-litre (170 PS)

Duratec ST 3.0-litre (226 PS)

Direct-Injection Petrol

Duratec SCi 1.8-litre (130 PS)

High-Pressure Common-Rail

Diesel

Duratorq TDCi 2.0-litre (115 PS)

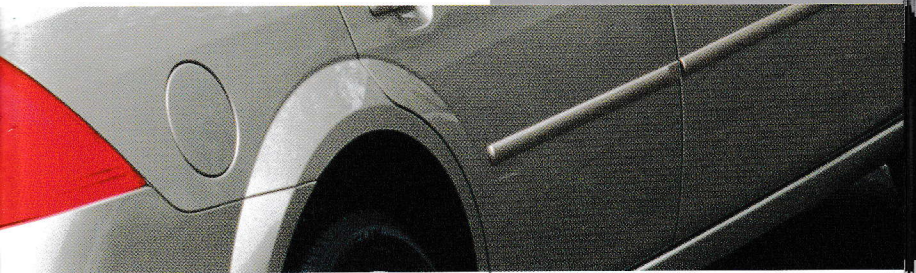
Duratorq TDCi 2.0-litre (130 PS)



Duratec SCi: up close and technical

The 130PS, 16-valve all-aluminium Duratec SCi engine features a number of technical differences from the standard 125PS, 1.8-litre HE Duratec engine in the Mondeo range:

- Fuel injection nozzles which operate directly into the combustion chamber.
- Specially designed pistons that feature asymmetric recesses, or bowls, to keep the stratified charge of fuel close to the spark plug for ideal combustion efficiency under lean-burn conditions.
- An injection system – similar to a diesel common-rail system – that achieves fuel pressures up to 120 bar.
- A new intake manifold architecture, which incorporates a continuously variable swirl control valve (SCV) at the intake port for each cylinder to allow the engine to ensure robust combustion under all operating conditions by maintaining optimum air motion in the cylinder.
- A complex exhaust catalyst system (EU Stage IV) includes two 'three-way' catalytic converters and an additional NO_x catalytic converter for robust emission control also under stratified lean operating conditions.
- A high-energy, direct-fire ignition with coil-on-plug technology and four-electrode surface-gap spark plugs, designed especially for efficient stratified combustion.



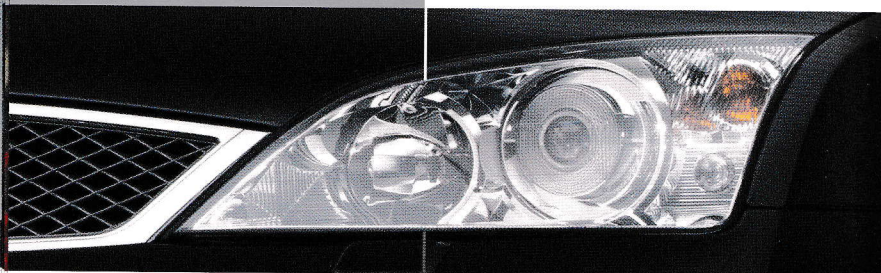
"Normal petrol engines are more powerful than they need to be for operating at typical real-world driving conditions," explained Prof Dr Rudolf Menne, director of engineering for petrol engine development, Ford of Europe. "Under these load and speed conditions, the engine uses a large proportion of fuel to overcome air resistance in the intake manifold caused by the load control via closing the intake throttle. The engine has to breathe against low pressures in the intake manifold which causes pumping losses to go up and fuel consumption to increase."

Duratec SCi's fuel injection system offers a smart way to overcome this throttle effect in low load conditions. Using lean-burn stratified smart charge in the

combustion chamber, it is able to function at very light throttle in a wide range of engine speeds and loads, making it much more frugal in its use of fuel.

Through the careful control of the flow of the gases entering through the intake ports by swirl control valves, and the precise delivery of fuel into the asymmetric bowls in the piston crowns, the direct-injection system places a small, combustible gas-air charge in the combustion chamber so that it is situated near the spark plug at the point of ignition. The area surrounding the combustion chamber is filled with either non-combustible mix or residual emission gas.

The special injection system for Duratec SCi features a flow-controlled, high-pressure



injection pump powered directly by the engine intake camshaft. The injectors for each individual cylinder are installed in Duratec SCi's unique, aluminium twin-cam head at a 35-degree angle above horizontal, the optimal angle to deliver fuel precisely into the combustion chamber.

(Note: On the accompanying CD-ROM, you will find a full, detailed technical explanation of Ford's Duratec SCi engine in English and German languages.)



DURATEC SCI TECHNICAL SPECIFICATIONS

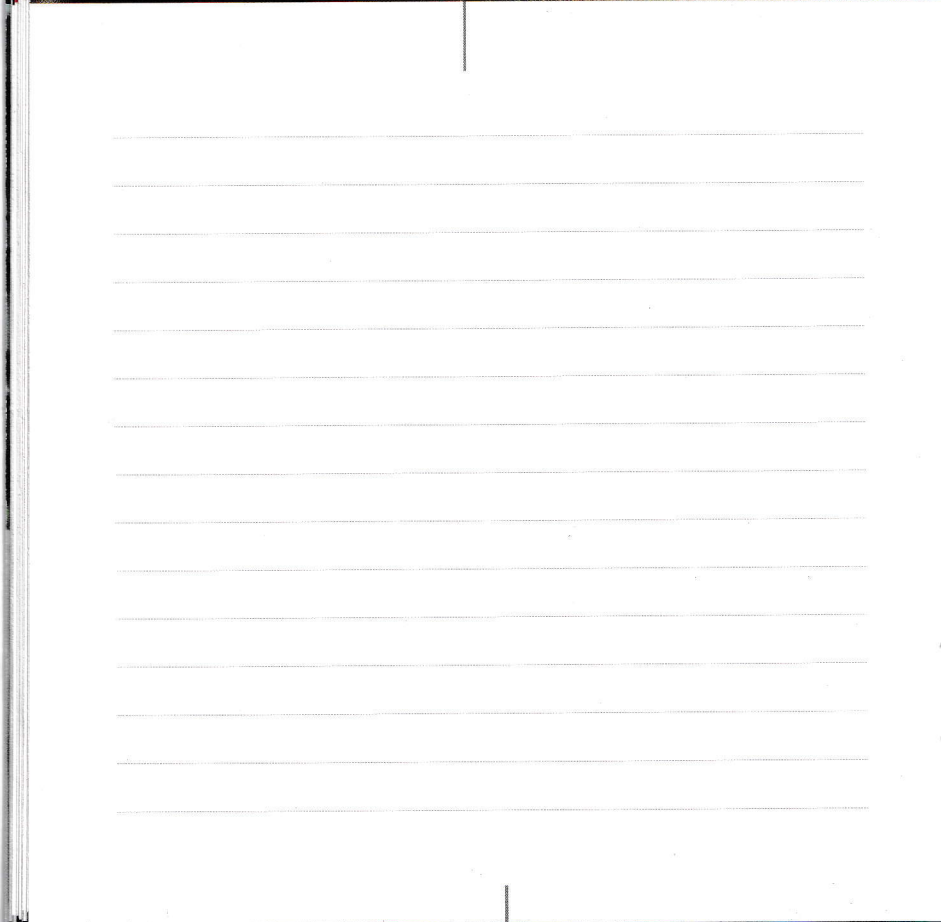
1.8L Duratec SCi 16V - 130 PS

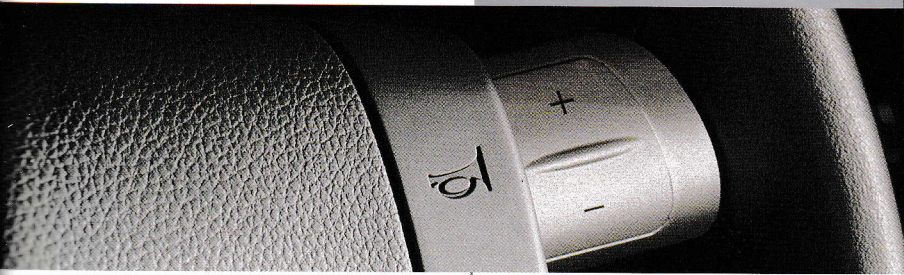
Engine Data

Displacement (cc)	1798
Bore (mm)	83
Stroke (mm)	83.1
Fuel type, grade	Unleaded petrol, 95 (RON)
Max power (ISO kW/PS)	96 / 130
At engine speed (rpm)	6000
Max torque (ISO Nm)	175
Max BMEP (bar)	12.3
At engine speed (rpm)	4250
Maximum engine speed (rpm)	6800
Idle speed (rpm)	700
Compression ratio	11.3:1
Cylinders	4, in line
Cylinder head	Low pressure, aluminium alloy casting
Cylinder block	Aluminium alloy with deep skirt and bearing beam
Crankshaft	Cast iron with four counterweights
Valves per cylinder	4
Valve gear	DOHC, direct acting mechanical shimless tappets



Valve Sizes (mm)	Intake: 32.5 Exhaust: 28.0
Camshaft drive	Silent inverted-tooth chain with hydraulic tensioner
Pistons	Lightweight, short skirt silicon-aluminium alloy with asymmetric recess, low-friction rings
Connecting rods	Sinter-forged steel with fracture-split big ends
Fuel injection	Direct injection. Straight spray with 50° spray-cone angle. Mounting position 36° above horizontal
Fuel pump	Single cylinder pump, fuel pressure to 120 bar
Ignition	Coil-on-plug, high energy ignition, 4-electrode surface-gap spark plugs
Induction	Two separate induction pipes with continuously variable swirl control valves for every second intake pipe
Combustion technique	Stratified; swirl, wall guided, with recessed piston head
Exhaust gas recirculation	External EGR, electronically controlled valves
Emission controls	Two three-way catalytic converters, DeNOx catalytic converter
Emission level	Euro Stage IV
Engine weight (kilograms)	122.35



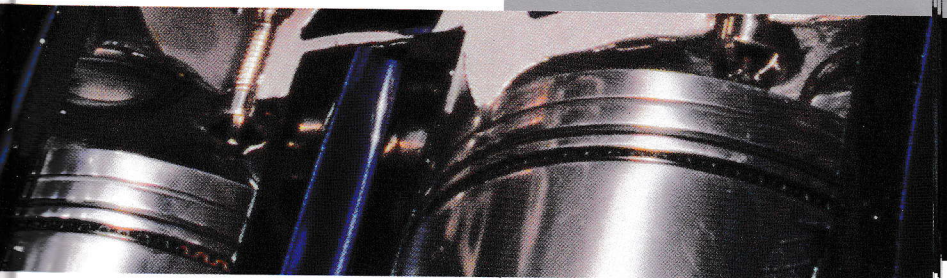


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sci















Ford Mondeo



Ford Mondeo



Ford Mondeo



Ford Mondeo



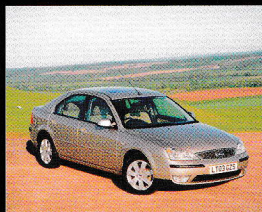
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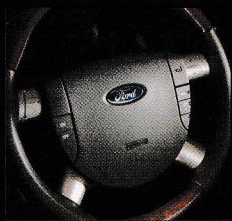
Ford Mondeo



Ford Mondeo interior



Ford Mondeo interior



Ford Mondeo interior



Ford Mondeo interior



Ford Mondeo interior



Duratec SCI



Duratec SCI



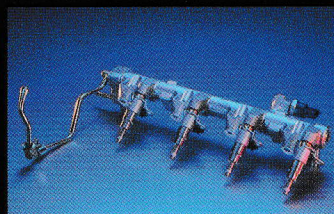
Duratec SCI



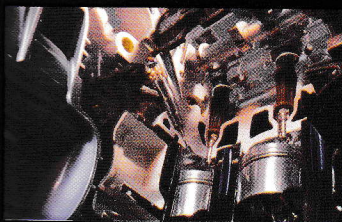
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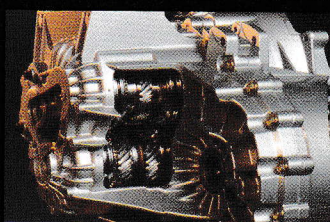
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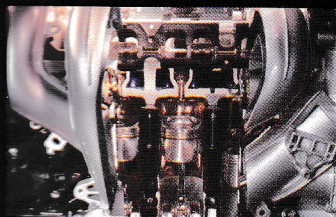
Duratec SCI



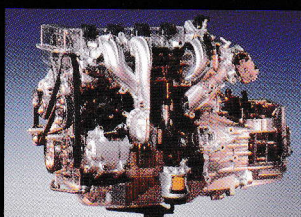
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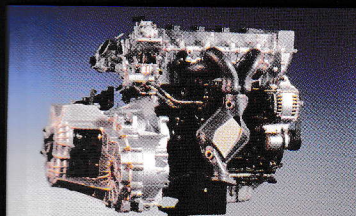
MMT6



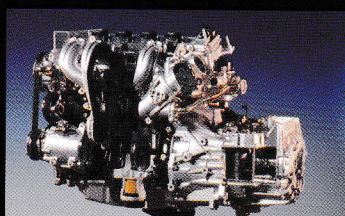
Duratec SCI



Duratec SCI



Duratec SCI



Duratec SCI



Joerg Beyer



Prof. Rudolf Menne



Dr. Sigurd Limbach

START

Windows 95/98/2000 and NT

- 1 Insert the CD in your CD-ROM drive.
- 2 The CD will start automatically. (If the autostart function is deactivated, double click on the CD-ROM symbol).

Macintosh

- 1 Insert the CD in your CD-ROM drive.
- 2 Open the 'start' file from the CD-ROM.

START

Windows 95/98/2000 und NT

- 1 Legen Sie die CD in Ihr CD-ROM-Laufwerk ein.
- 2 Die CD startet automatisch. (Sollte Ihre Autostart-Funktion deaktiviert sein, doppelklicken Sie auf das CD-ROM-Symbol).

Macintosh

- 1 Legen Sie die CD in ihr CD-ROM Laufwerk ein.
- 2 Öffnen Sie die Datei 'start' von der CD-ROM.

DEMARRAGE

Windows 95/98/2000 et NT

- 1 Insérez le CD dans votre lecteur de CD-ROM.
- 2 Le CD se met automatiquement en route. (Si la fonction de démarrage automatique est désactivée, cliquez deux fois sur le symbole du CD-ROM).

Macintosh

- 1 Insérez le CD dans votre lecteur de CD-ROM.
- 2 Ouvrez le fichier 'start' situé sur le CD-ROM.

AVVIO

Windows 95/98/2000 e NT

- 1 Inserire il CD nell'unità del CD-ROM.
- 2 Il CD verrà avviato automaticamente. (Se la funzione di avvio automatico è disattivata, fare doppio clic sull'icona del CD-ROM).

Macintosh

- 1 Inserire il CD nell'unità del CD-ROM.
- 2 Dal CD-ROM aprire il file 'start'.

INICIO

Windows 95/98/2000 y NT

- 1 Inserte el CD en la unidad lectora de CD-ROM.
- 2 El CD se pondrá en marcha automáticamente. (Si la función autoinicio no está activada, haga clic dos veces en el icono del CD-ROM).

Macintosh

- 1 Inserte el CD en la unidad lectora de CD-ROM.
- 2 Abra el archivo 'start' en el CD-ROM.


Ford Motor Company
100 years